Worksheet 5a – CO_2, KCl, PCl_3, N_2

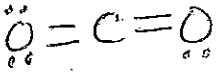
For the compounds below:

1) Decide if they are ionic or covalent compounds.
2) Name them.
3) Use the instructions below to draw the Lewis structures of the compounds you have identified as covalent compounds:

Each group from the same team should share their results amongst their team, then one person will then share the results with the whole class.

CO_2, KCl, PCl_3, N_2

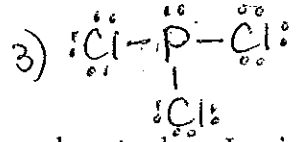
CO_2

1) covalent
2) carbon dioxide
3) 

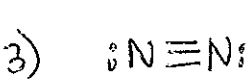
KCl

1) ionic
2) potassium chloride
3) 

PCl_3

1) covalent
2) phosphorus trichloride
3) 

N_2

1) covalent (molecular element)
2) nitrogen
3) 

Procedure to draw Lewis structures:

1) Count up the valence electrons from all atoms.
2) Write the symbols for the atoms to show which atoms are attached to which, and connect them with a single bond (—= two electrons)
3) Complete octets of the atoms bonded to the central atom (H can only have two electrons)
4) Place any leftover electrons on the central atom.
5) If there are not enough electrons to give the central atom an octet, try multiple bonds.

Worksheet 5b – CO, CaI_2, NO_2, I_2

For the compounds below:

1) Decide if they are ionic or covalent compounds.
2) Name them.
3) Use the instructions below to draw the Lewis structures of the compounds you have identified as covalent compounds:

Each group from the same team should share their results amongst their team, then one person will then share the results with the whole class.

CO, CaI_2, NO_2, I_2

CO

1) covalent
2) carbon monoxide
3) :C≡O:

CaI_2

1) ionic
2) calcium iodide
3) $Ca^{2+}\ 2\ [:\ddot{I}:]^-$

NO_2

1) covalent
2) nitrogen dioxide
3) :Ö – N = Ö:

I_2

1) covalent (molecular element)
2) iodine
3) :Ï – Ï:

Procedure to draw Lewis structures:

1) Count up the valence electrons from all atoms.
2) Write the symbols for the atoms to show which atoms are attached to which, and connect them with a single bond (— = two electrons)
3) Complete octets of the atoms bonded to the central atom (H can only have two electrons)
4) Place any leftover electrons on the central atom.
5) If there are not enough electrons to give the central atom an octet, try multiple bonds.

Worksheet 5c – NH_3, SO_2, K_2O, F_2

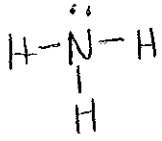
For the compounds below:

1) Decide if they are ionic or covalent compounds.
2) Name them.
3) Use the instructions below to draw the Lewis structures of the compounds you have identified as covalent compounds:

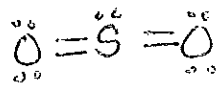
Each group from the same team should share their results amongst their team, then one person will then share the results with the whole class.

NH_3, SO_2, K_2O, F_2

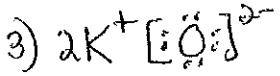
NH_3

1) covalent
2) nitrogen trihydride (ammonia)
3) 

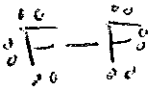
SO_2

1) covalent
2) sulfur dioxide
3) 

K_2O

1) ionic
2) potassium oxide
3) 

F_2

1) covalent (molecular element)
2) fluorine
3) 

Procedure to draw Lewis structures:

1) Count up the valence electrons from all atoms.
2) Write the symbols for the atoms to show which atoms are attached to which, and connect them with a single bond (— = two electrons) .
3) Complete octets of the atoms bonded to the central atom (H can only have two electrons)
4) Place any leftover electrons on the central atom.
5) If there are not enough electrons to give the central atom an octet, try multiple bonds.

Worksheet 5d – N_2O, CH_4, H_2, MgF_2

For the compounds below:

1) Decide if they are ionic or covalent compounds.
2) Name them.
3) Use the instructions below to draw the Lewis structures of the compounds you have identified as covalent compounds:

Each group from the same team should share their results amongst their team, then one person will then share the results with the whole class.

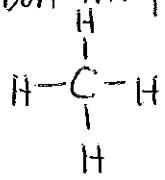
N_2O, CH_4, H_2, MgF_2

N_2O

1) covalent
2) dinitrogen monoxide
3) :N≡N–Ö:

CH_4

1) covalent
2) carbon trihydride (methane)
3)



H_2

1) covalent (molecular element
2) hydrogen
3) H–H

MgF_2

1) ionic
2) magnesium fluoride
3) Mg^{2+} 2[: F̈ :]$^-$

Procedure to draw Lewis structures:

1) Count up the valence electrons from all atoms.
2) Write the symbols for the atoms to show which atoms are attached to which, and connect them with a single bond (— = two electrons)
3) Complete octets of the atoms bonded to the central atom (H can only have two electrons)
4) Place any leftover electrons on the central atom.
5) If there are not enough electrons to give the central atom an octet, try multiple bonds.